



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,483	08/31/2001	Ying J. Feria	PD-200095A	5535
20991	7590	08/01/2006	EXAMINER	
THE DIRECTV GROUP INC			LY, ANH VU H	
PATENT DOCKET ADMINISTRATION RE/R11/A109				
P O BOX 956			ART UNIT	PAPER NUMBER
EL SEGUNDO, CA 90245-0956			2616	

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

5/14

Office Action Summary	Application No.	Applicant(s)	
	09/945,483	FERIA ET AL.	
	Examiner	Art Unit	
	Anh-Vu H. Ly	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 7-10 is/are rejected.
- 7) ☒ Claim(s) 2 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This communication is in response to applicant's amendment filed June 12, 2006.

Claims 1-10 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 9, and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Sayeed (US Pub 2002/0172181 A1).

With respect to claim 1, Sayeed discloses a method of optimizing utilization of user link bandwidth for a code division multiple access communications system (Figs. 1 and 2) comprising the steps of:

selecting a set of orthogonal complex codes (page 2, 18th paragraph, a transmitter 100 encodes each of N data streams, to be transmitted using a 4n codeword or Hadamard codes) each having a code length that is greater than a code length of an associated optimum real code and less than or equal to an associated spreading code length (page 3, 25th-27th paragraphs and Figs. 4-6 illustrating a correlation where codes are shifted by one unit of time for Walsh codes of

Art Unit: 2616

length 64 and for Hadamard ($4n$) codes of length 96 and PN sequence of length $2^{15}-1$. Herein, Hadamard codes are the selected orthogonal complex codes; Walsh codes are optimum real codes, and PN sequence is spreading code. Whereby, the Hadamard codes of length 96 is greater than a code length of Walsh code and less than to the spreading code length or PN sequence $2^{15} - 1$. Further, Hadamard codes are chosen so that utilization of the bandwidth of at least one of a plurality of user links is optimized); and

transferring symbols across the at least one of a plurality of user links to or from at least one of a corresponding plurality of user terminals wherein the symbols are represented by a corresponding one of the set of orthogonal complex codes (Figs. 1 and 2 illustrating a block diagram of a CDMA transmission system for transmitting data symbols over the air interface to one or more receivers according to Hadamard codes).

With respect to claim 3, Sayeed discloses that wherein the corresponding one of the set of orthogonal complex codes has a code length of 12 (page 2, 23rd paragraph, Hadamard codes that use multiples of 4 ($4n$) to permit more users in a given bandwidth. Herein, n is an integer therefore for $n=3$ which yields a Hadamard code length of 12).

With respect to claim 9, Sayeed discloses a method of increasing utilization of user link bandwidth for a code division multiple access communication system (Figs. 1 and 2) comprising the steps of:

selecting a spreading code length (page 3, 27th paragraph, PN sequence has a length of $2^{15} - 1$); and

selecting a set of orthogonal complex codes (page 2, 18th paragraph, a transmitter 100 encodes each of N data streams, to be transmitted using a 4n codeword or Hadamard codes) each having a code length that is greater than a code length of an optimum real code and less than or equal to the spreading code length (page 3, 25th-27th paragraphs and Figs. 4-6 illustrating a correlation where codes are shifted by one unit of time for Walsh codes of length 64 and for Hadamard (4n) codes of length 96 and PN sequence of length $2^{15}-1$. Herein, Hadamard codes are the selected orthogonal complex codes; Walsh codes are optimum real codes, and PN sequence is spreading code. Whereby, the Hadamard codes of length 96 is greater than a code length of Walsh code and less than to the spreading code length or PN sequence $2^{15} - 1$).

With respect to claim 10, Sayeed discloses transferring symbols across a user link to or from a user terminal wherein the symbols are represented by a corresponding one of the set of orthogonal complex codes (Figs. 1 and 2 illustrating a block diagram of a CDMA transmission system for transmitting data symbols over the air interface to one or more receivers according to Hadamard codes).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayeed (US Pub 2002/0172181 A1) in view of Gerakoulis et al (US Pub 2005/0013240 A1).

With respect to claim 4, Sayeed discloses a correlation where the codes have been shifted by one time unit for Walsh codes, Hadamard codes, and PN codes with different lengths (Figs. 4-6). Sayeed does not disclose that the spreading code has a length of 12. Gerakoulis discloses that a spreading code has a length of 12 (page 3, 43rd paragraph and Table). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a spreading code length of 12 in Sayeed's system, as suggested by Gerakoulis, to accommodate different required user data rates.

4. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayeed (US Pub 2002/0172181 A1) in view of Sayeed et al (US Patent No. 6,728,202 B1). Hereinafter, referred to as Sayeed's 181 and Sayeed's 202.

With respect to claim 5, Sayeed's 181 discloses a CDMA communications system (Figs. 1-2) comprising:

a base station (Fig. 1);

a plurality of user terminals (page 2, 18th paragraph, in order to transmit data on the downlink portion of a CDMA system from one or more information sources to a plurality of end users, the transmitter encodes each of N data streams to be transmitted using a 4n codeword);

wherein the symbols are represented by at a corresponding one of a set of orthogonal complex codes (page 2, 18th paragraph, a transmitter 100 encodes each of N data streams, to be transmitted using a 4n codeword or Hadamard codes) having a code length that is greater than a

Art Unit: 2616

code length of an optimum real code and less than or equal to a spreading code length (page 3, 25th-27th paragraphs and Figs. 4-6 illustrating a correlation where codes are shifted by one unit of time for Walsh codes of length 64 and for Hadamard (4n) codes of length 96 and PN sequence of length $2^{15}-1$. Herein, Hadamard codes are the selected orthogonal complex codes; Walsh codes are optimum real codes, and PN sequence is spreading code. Whereby, the Hadamard codes of length 96 is greater than a code length of Walsh code and less than to the spreading code length or PN sequence $2^{15} - 1$).

Sayeed's 181 does not disclose a geo-stationary platform; a feeder link coupled to the base station and the geo-stationary platform that transfers symbols between the base station and the geo-stationary platform; and a plurality of user links coupled respectively to the plurality of user terminals and to the geo-stationary platform that transfers symbols between the geo-stationary platform and at least one of the plurality of user terminals.

Sayeed's 202 discloses a CDMA satellite broadcasting system including two GEO satellites 110 and 120, a wireless link 160 for transferring symbols between the geostationary satellites and repeater 140 and a plurality of wireless links 170 and 180 for transferring symbols between the GEO satellites and at least one of the plurality of user terminals 150 (Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Sayeed's 181 and 202 to have a CDMA satellite broadcasting system employing orthogonal Hadamard's codes to increase the flexibility of the number of channels and bandwidth relationship.

With respect to claim 7, Sayeed's 181 discloses that wherein at least one of the set of orthogonal complex codes has a code length of 12 (page 2, 23rd paragraph, Hadamard codes that use multiples of 4 ($4n$) to permit more users in a given bandwidth. Herein, n is an integer therefore for $n=3$ which yields a Hadamard code length of 12).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayeed's 181 and Sayeed's 202 and further in view of Gerakoulis et al (US Pub 2005/0013240 A1).

With respect to claim 8, Sayeed's 181 discloses a correlation where the codes have been shifted by one time unit for Walsh codes, Hadamard codes, and PN codes with different lengths (Figs. 4-6). Sayeed's 181 does not disclose that the spreading code has a length of 12. Gerakoulis discloses that a spreading code has a length of 12 (page 3, 43rd paragraph and Table). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a spreading code length of 12 in Sayeed's 181 system, as suggested by Gerakoulis, to accommodate different required user data rates.

Allowable Subject Matter

6. Claims 2 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed June 12, 2006 have been fully considered but they are not persuasive.

Applicant argues in page 7 that the Sayeed' 181 reference does not teach the selection of associated codes. In fact, the codes mentioned in Sayeed are randomly chosen. And the Sayeed codes are not associated with each other since "n" is not the same and varies between 4 and 15. Examiner respectfully disagrees. First of all, whether the codes are intentionally or randomly chosen, the codes must meet the requirements as clearly recited in claim 1. Specifically, each code has a code length that is greater than a code length of an associated optimum real code and less than or equal to an associated spreading code length. Sayeed discloses in page 3, 25th-27th paragraphs and Figs. 4-6 a correlation where codes are shifted by one unit of time for Walsh codes of length 64 and for Hadamard (4n) codes of length 96 and PN sequence of length $2^{15}-1$. Herein, Hadamard codes are the selected orthogonal complex codes; Walsh codes are associated optimum real codes, and PN sequence is spreading code. Whereby, the Hadamard codes of length 96 is greater than a code length of Walsh code and less than to the spreading code length or PN sequence $2^{15} - 1$. Therefore, whether it is randomly chosen or selectively chosen, the codes at least meet the boundary requirements, which is greater than Walsh code and less than spreading code length. Secondly, claim 1 does not recite that the codes must be associated with each other and have the constant "n" value. At last, claim 1 does not recite that the selecting step of meeting the requirements must always occurred in every selection.

Applicant further argues in page 7 that the Sayeed' 181 reference does not disclose increasing the Hadamard code length so that optimum utilization of bandwidth is achieved. Examiner has carefully reviewed the claim limitations and found no such argued statement, as recited in claim 1.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H. Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

avl


CHI PHAM
SUPERVISORY PATENT EXAMINER 7/27/08